CLAIMS

What is claimed is:

1. A device for the collection and extraction of at least one analyte within a sample, said device comprising:

a sorption vial including an interior surface, an opening to said interior surface and a vial base distal said opening;

a sorptive coating on said interior surface;

a sample vessel for collecting said sample;

a cap for closing said sample vessel; and

said vial base selectively attached to said cap.

2. The device of claim 1, further comprising:

said interior surface having a conical shape;

said conically-shaped interior surface having a vertex and a directrix;

said vertex proximate said vial base;

said directrix facing said opening.

3. The device of claim 1, further comprising:

said interior surface including an interior wall and an interior base;

said interior base having a conical shape;

said conically-shaped interior base having a vertex and a directrix;

said vertex proximate said vial base;

said directrix contiguous with said interior wall; and

said sorptive coating covering said conically-shaped interior base.

4. The device of claim 3, wherein said sorption vial comprises silica glass.

5. The device of claim 3, further comprising:

said sorptive coating comprising an immobilized polysiloxane polymer having one type of functional group selected from the group consisting of alkyl, alkenyl, alkynyl, aryl, alkylaryl, alkenylaryl, alkynylaryl, haloalkyl and haloaryl.

6. The device of claim 3, further comprising:

said sorptive coating comprising an immobilized polysiloxane polymer having at least two types of functional groups selected from the group consisting of alkyl, alkenyl, alkynyl, aryl, alkylaryl, alkenylaryl, alkynylaryl, haloalkyl and haloaryl.

7. The device of claim 3, wherein said sorptive coating comprises an immobilized porous polymer.

8. The device of claim 7, wherein said immobilized porous polymer is selected from the group consisting of: divinylbenzene, ethyleneglycoldimethacrylate, polyethyleneimine, acrylonitrile, n-vinyl-2-pyrollidinone, and 4-vinyl-pyridine.

9. The device of claim 3, wherein said sorptive coating comprises a sol gel coating.

10. The device of claim 3, wherein said sorptive coating is a polymer existing above its glass transition temperature.

11. The device of claim 3, further comprising:

a vial cap for sealing said sorption vial; and

said vial cap covering said opening.

12. A device for the collection and extraction of at least one analyte within a sample, said device comprising:

a sorption vial including an interior wall, an interior base, an opening to said interior wall and said interior base and a vial base distal said opening;

said interior base having a conical shape;

said conically-shaped interior base having a vertex and a directrix;

said vertex proximate said vial base;

said directrix contiguous with said interior wall;

a sorptive coating on said conically-shaped interior base;

a sample vessel for collecting said sample;

a cap for closing said sample vessel;

said vial base selectively attached to said cap;

a vial cap for sealing said sorption vial; and

said vial cap covering said opening.

13. The device of claim 12, further comprising:

said sorptive coating comprising an immobilized polysiloxane polymer having one type of functional group selected from the group consisting of alkyl, alkenyl, alkynyl, aryl, alkylaryl, alkenylaryl, alkynylaryl, haloalkyl and haloaryl.

14. The device of claim 12, further comprising:

said sorptive coating comprising an immobilized polysiloxane polymer having at least two types of functional groups selected from the group consisting of alkyl, alkenyl, alkynyl, aryl, alkylaryl, alkenylaryl, alkynylaryl, haloalkyl and haloaryl.

15. The device of claim 12, wherein said sorptive coating comprises an immobilized porous polymer.

16. The device of claim 15, wherein said immobilized porous polymer is selected from the group consisting of: divinylbenzene, ethyleneglycoldimethacrylate, polyethyleneimine, acrylonitrile, n-vinyl-2-pyrollidinone, and 4-vinyl-pyridine.

17. The device of claim 12, wherein said sorptive coating comprises a sol gel coating.

18. The device of claim 12, wherein said sorptive coating is a polymer existing above its glass transition temperature.

19. A method for performing direct vial extraction of analytes from a sample utilizing a sorption vial and a sample vessel, said sorption vial including a vial base, a vial interior, and a vial opening, said vial interior intermediate said vial base and said vial opening, said method comprising:

coating said vial interior with a sorptive material;

selectively attaching said vial base to a cap;

collecting a liquid sample in said sample vessel;

closing said sample vessel with said cap;

exposing said liquid sample to said sorptive coating;

opening said sample vessel;

removing said sorption vial from said cap;

adding a solvent to said sorption vial; and

sealing said sorption vial with a vial cap.

20. The method of claim 19 wherein said exposing step comprises agitating said sample vessel.

21. The method of claim 19 wherein said exposing step comprises subjecting said sorption vial to a headspace above said sample.

22. The method of claim 19 wherein said vial interior including a conically-shaped bottom surface; and

said coating step including coating said conically-shaped bottom surface with said sorptive coating.